

Reference: #15S1304102

23 November 2016

Urbis
Level 23, Darling Park Tower 2
201 Sussex Street
SYDNEY NSW 2000

Attention: Ms Jacqueline Parker (Associate Director)

Dear Jacqui

**RE: CHATSWOOD CHASE PLANNING PROPOSAL
GTA TRANSPORT IMPACT ASSESSMENT - RESPONSE TO REQUEST FOR FURTHER
INFORMATION**

On July 2016, GTA finalised a transport impact assessment report (titled 'Archer Street Planning Proposal, Chatswood Chase – Transport Impact Assessment') for a proposed expansion of the Chatswood Chase Shopping Centre ('the Centre') in Chatswood.

Preliminary planning at the time of preparing that report suggested that the planning proposal would incorporate in the order of approximately 17,000sqm of retail floor area; increasing the floor area from 58,650sqm to approximately 75,650sqm. Detailed plans were not prepared at the time although it was envisaged that approximately 680 additional car spaces would likely be provided as part of the expansion.

It is understood that the above report was submitted to Willoughby City Council who subsequently engaged Arup to undertake a peer review of the GTA assessment. The findings of the Arup review are contained in a memorandum dated 10 November 2016, with the below prepared by GTA to summarise their key concerns and provide a response.

The Arup concerns and the GTA responses are outlined as follows:

Existing Traffic Volumes

The Council commented that the traffic surveys should be used as the basis of estimating the existing traffic generation rate for the site which to be consistent with the wider intersection modelling undertaken for the study, i.e. existing traffic generation rate: 2.90 movements per 100m² (PM peak hour) and 4.41 movements per 100 m² (Saturday peak hour).

GTA's Response:

From wider intersection modelling perspective, GTA agrees that it is appropriate to adopt the traffic movement counts obtained from the traffic survey to estimate development impacts.

In terms of the overall traffic generation of the site, however, GTA notes potential concern in using surrounding intersection volumes to estimate the traffic generate rate given that these volumes would – to an extent – include non-development generated traffic. Most notably, the traffic volumes at the Malvern Avenue / Archer Street intersection will naturally

melbourne
sydney
brisbane
canberra
adelaide
gold coast
townsville
perth

Level 6, 15 Help Street
CHATSWOOD NSW 2067
PO Box 5254
WEST CHATSWOOD NSW 1515
t// +612 8448 1800

include traffic which is generated not only by the Centre but also the adjoining commercial properties as well as any on-street car parking traffic generation.

In this regard, the GTA report adopted the use of boom gate traffic volume data (as provided by Wilson Parking) as it was considered to represent a more accurate estimate of the traffic generation of the existing Centre, that is, it was used to specifically exclude the influence of adjoining properties and on-street car parking.

To further explore the difference between the two data sets, Table 1 presents a summary of the boom gate data and the turning movement data, broken down by access location for both data sets¹.

Table 1: Traffic Volume Comparison – Boom Gate Data vs Turning Movement Data

Peak Hour	Access	Boom Gate Data	Turning Movement Data	Difference
Weekday PM	Victoria Avenue	939vph	899vph	+40vph
	Malvern Avenue	496vph	623vph	-127vph
	Archer Street	190vph	181vph	+9vph
	Total	1625vph	1703vph	-78vph
Saturday Midday	Victoria Avenue	1367vph	1376vph	-9vph
	Malvern Avenue	646vph	869vph	-223vph
	Archer Street	345vph	345vph	-
	Total	2358vph	2590vph	-232vph

Table 1 indicates that two data sets are particularly close for the Victoria Avenue and Archer Streets accesses with the principal difference in the data sets being generated by the notable difference in the two data sets at the Malvern Avenue access.

In our view, this comparison adds support to the presumption that the adjoining properties, coupled with on-street car parking activity, along Malvern Avenue generate the differences between the two data sets. Accordingly, GTA considers the use of the boom gate data to estimate the traffic generation of the Centre is appropriate.

Existing Intersection Operation

The traffic modelling for the Albert Avenue / Archer Street intersection should be revisited to ensure the results are reflective of on-site conditions.

GTA's Response:

The intersection operation of this intersection has been revisited by GTA, as we agree that an intersection – calibrated to existing traffic volumes passing through that intersection – cannot have a Degree of Saturation more than 100%.

In undertaking this review, GTA discovered that this mistake was the result of a typing error in the User Given Phase Times, which did not provide sufficient phase time in "E phase" to accommodate the right turn movement from the north. Furthermore, the review indicated that

¹ It is noted that this level of detail for the boom gate data was not provided in the GTA report.

Site model had been operated with User Given Cycle Time, yet the network model operated with User Given Phase Times. The existing conditions model has since been updated, with key changes being:

- Phase Splits were fixed in the Phasing and Timing Data was adopted to align more closely with IDM data. Specifically, the adopted Phase Splits were A Phase = 50 seconds, D = 43 seconds and E Phase = 17 seconds.
- Timing Options in the Phasing and Timing Data were set to User Given Phase Times.
- Network Timing – Site Phase Times were set to User Given.

The previously reported and corrected SIDRA results adopting these changes is presented in Table 2.

Table 2: Comparison of SIDRA Results at Albert Avenue / Archer Street – Saturday Only

Conditions	Results	Degree of Saturation	Average Delay (sec)	95 th Percentile Queue (m)	Level of Service
Existing	Previous	1.16	41.7	143.5	LOS C
	Corrected	0.94	32.8	111.5	LOS C
Post Development	Previous	0.91	39.6	155.9	LOS C
	Corrected	0.91	38.2	155.9	LOS C

Table 2 presents the results of a better calibrated SIDRA model for the Albert Street / Archer Street intersection and indicates that the impact of the development at this intersection is likely to be relatively minor, with post-development performance well within acceptable limits.

It is noted that whilst not specifically raised by Arup, GTA is currently in the process of reviewing all SIDRA files and will provide an update of any additional changes to performance results in the form of a report addendum. It is expected that this addendum will be provided within one week of the date of this letter. Notwithstanding this, it is stressed that GTA does not expect that this review will identify changes that will have a material impact on the overall findings of our previous report.

Site Traffic Generation

The traffic generation rate should be revised to reflect the traffic counts obtained from the traffic surveys and the future traffic modelling should therefore be revised to consider these additional traffic movements.

GTA's Response:

As outlined above, GTA considers the use of boom gate data presents a more accurate estimate of the traffic generation of the Centre and therefore disagrees that reanalysis of the intersections (assuming higher traffic generation rates) is warranted.

Notwithstanding this, as part of future transport studies for subsequent stages of the planning process, GTA considers that a sensitivity assessment could be undertaken using slightly higher rates that, amongst other items, has regard to potential season fluctuations. At this stage of the planning process, however, GTA does not consider this analysis to be necessary.

Traffic Distribution

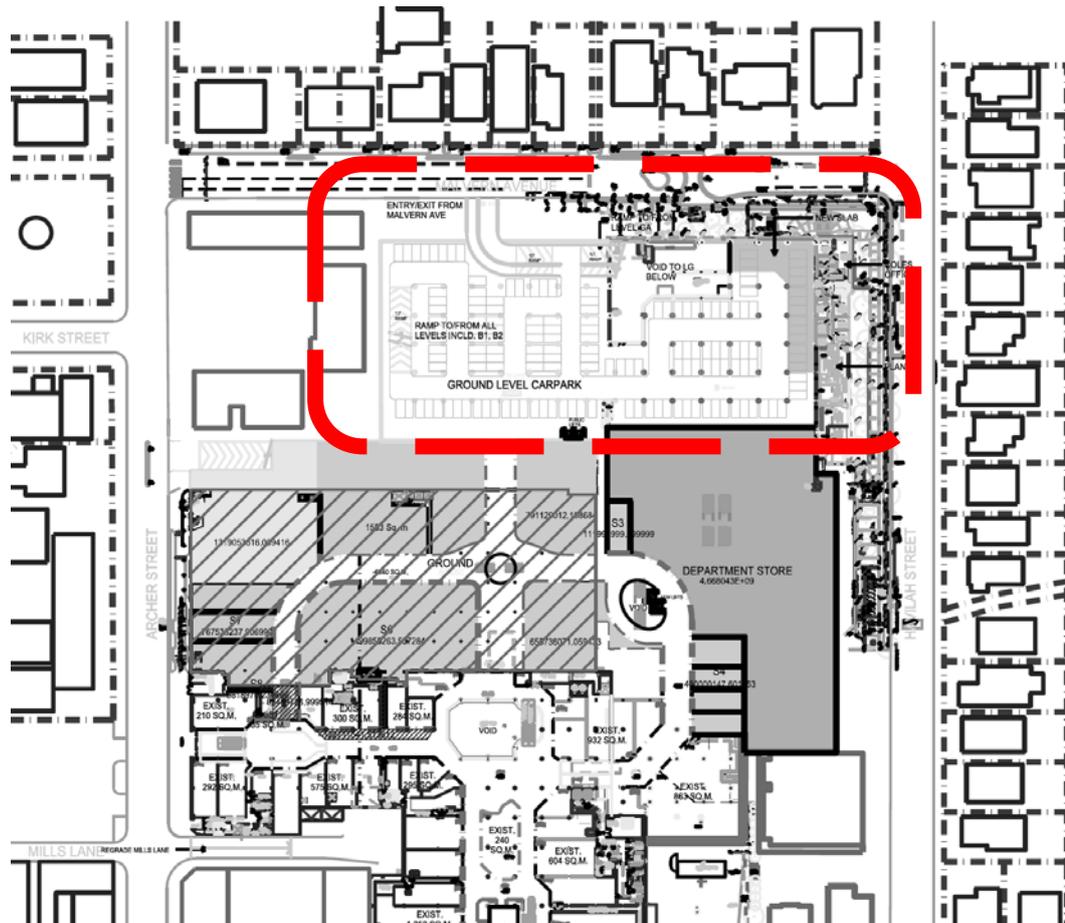
The directional split amongst the site access points assumed for the post-development condition are different from that of the existing. In lieu of detailed car parking plans and layouts, the current entry / exit distributions for the site (based on surveyed traffic volumes) should be used as the basis for assigning the additional traffic on the road network. Besides, even if the additional parking were to be provided in close proximity to Malvern Avenue access, a higher proportion of vehicles (minimum 30%) should be modelled as entering/ exiting via Victoria Avenue.

GTA's Response:

In our view, the proposed traffic distributions are appropriate for the following reasons:

- i Advice provided to GTA during the preparation of our report indicated that the proposed expansion of the car park would likely only be feasible within a basement to the north of the Centre (refer to Figure 1 below). Assuming car parking is provided at this location, it is reasonable to assume that a greater proportion of development traffic would utilise Malvern Avenue.

Figure 1: Anticipated Location of Additional Car Parking



- ii In reality, traffic to/from the Centre is likely to adopt the path of least congestion, as far as practicable, with motorists adjusting their route to use the access points which provide the best access to the Centre and its available car parking areas. Having regard to the relative better performance of Malvern Avenue compared to Victoria Avenue, it is expected that more traffic would prefer to utilise the roads to the north.
- iii The existing traffic distributions were maintained for the existing traffic movements, with the new traffic distributions only assumed for the predicted increase in traffic movements. Having regard to the fact that the additional traffic is expected to be a relatively small proportion of the existing traffic during each peak hour, the overall distributions of traffic to/from the Centre are not expected to significantly change. For reference, an assessment of the overall change in traffic distributions – assuming the boom gate distributions – is outlined in Tables 3 and 4 for the weekday PM and Saturday midday respectively.

Table 3: Change in Traffic Distribution – Weekday Peak Hour

Access	Existing			Additional			Post Development			Change
	VPH Total	%	VPH	VPH Total	%	VPH	VPH Total	VPH	%	
Victoria Avenue	1625	57.8%	939	+237	10%	+24	1862	963	51.7%	-6.1%
Malvern Avenue		30.5%	496		55%	+130		626	33.6%	+3.1%
Archer Street		11.7%	190		35%	+83		273	14.7%	+3.0%

Table 4: Change in Traffic Distribution – Saturday Peak Hour

Access	Existing			Additional			Post Development			Change
	VPH Total	%	VPH	VPH Total	%	VPH	VPH Total	VPH	%	
Victoria Avenue	2358	58.0%	1367	+378	10%	+38	2736	1405	51.3%	-6.6%
Malvern Avenue		27.4%	646		55%	+208		854	31.2%	+3.8%
Archer Street		14.6%	345		35%	+132		477	17.4%	+2.8%

These tables highlight that the change in distribution is minor, with the Victoria Avenue access remaining the principal access for traffic entering and exiting the car parks. Specifically, the proportion of traffic using this access is expected to change as follows:

- Weekday Peak Hour: 58% to 52% approx.
- Saturday Peak Hour: 58% to 51% approx.

Notwithstanding these reasons, as per the earlier comment, GTA notes that sensitivity testing of the assumed distributions could be undertaken as part of future transport studies for the subsequent stages of the planning process. At this stage of the planning process, however, GTA does not consider this analysis to be necessary.

Traffic Modelling

The following intersections which are directly attributable to the planning proposal should be investigated and further measures may need to be identified to mitigate traffic impacts on the local road network:

- Archer Street / Boundary Street
- Archer Street / Malvern Avenue / Wattle Lane
- Archer Street / Albert Avenue

GTA's Response:

It is acknowledged that the GTA report only presents an initial, albeit substantial, assessment of the likely impacts of the planning proposal. It is expected that future studies of traffic impacts of the proposal will examine other mitigation options, including the consideration of works at the abovementioned intersections. Based on the SIDRA analysis contained within the GTA report, however, it is our view that this analysis is not necessary at this time. It is also noted that the proposal is within the gateway process at this moment and further consultation with the government agency such as RMS will occur in the coming months. This consultation will include consideration of mitigation options in addressing the traffic impacts on the local road network.

Naturally, should you have any questions or require any further information regarding the above, please do not hesitate to contact Billy Yung or myself in our Sydney office on (02) 8448 1800.

Yours sincerely

GTA CONSULTANTS



Tim De Young
Director